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Innovation in Practice Feature

Engagement among Students with Intellectual Disabilities and First Year Students: A Comparison

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A phenomenon is spreading across institutions of higher education (IHEs) —the participation of students with intellectual disabilities (ID) in inclusive postsecondary education programs. Data on two cohorts of first-year students with ID indicate that these students are experiencing college life, as measured by the National Survey of Student Engagement (NSSE), similarly to other first-year college students. These results provide preliminary evidence of the feasibility and value of educating students with cognitive challenges on university campuses.

Institutions of higher education (IHEs) in the United States are constantly striving to improve the engagement, quality of experiences, and ultimately the graduation rates of college students (Barefoot, Griffin, & Koch, 2012; Pascarella & Terenzini, 2005). Higher education in the 21st century is marked by a wide range of forward thinking strategies for keeping IHEs relevant and responsive to their diverse constituencies in a highly competitive educational marketplace. In the decade between 1998 and 2008, enrollment in higher education grew by 32% (Snyder & Dillow, 2009) with traditionally underrepresented students (e.g., minorities, economically disadvantaged) accounting for much of the growth (Renn & Reason, 2013). In the midst of an ever-expanding diverse student population, relatively little focus has been on the postsecondary education (PSE) of students with disabilities, especially those with intellectual and cognitive disabilities. Think College (see www.thinkcollege.net), an important clearinghouse for identifying postsecondary education options for students with ID, is a resource for students with ID wishing to gain access to college. Think College identifies over 200 transition and/or PSE programs currently offered at community colleges, four-year colleges, and universities.

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The trend for including and supporting individuals with disabilities such as individuals with learning disabilities (LD), autism spectrum disorder (ASD), intellectual disabilities (ID), developmental delays (DD), sensory and/or physical challenges in fulltime, campus-based PSE programs is growing. The specific needs of any given student, regardless of disability label, are idiosyncratic to some degree but universal in the sense that comprehensive academic, social, and cultural supports are required for all students (Renn & Reason, 2013). Davidson and Bauman (2013) noted that there are many legal requirements associated with accommodating students with disabilities and inclusive, successful accommodations result from the cooperative efforts of multiple stakeholders. A holistic student development philosophy is considered essential to student success.

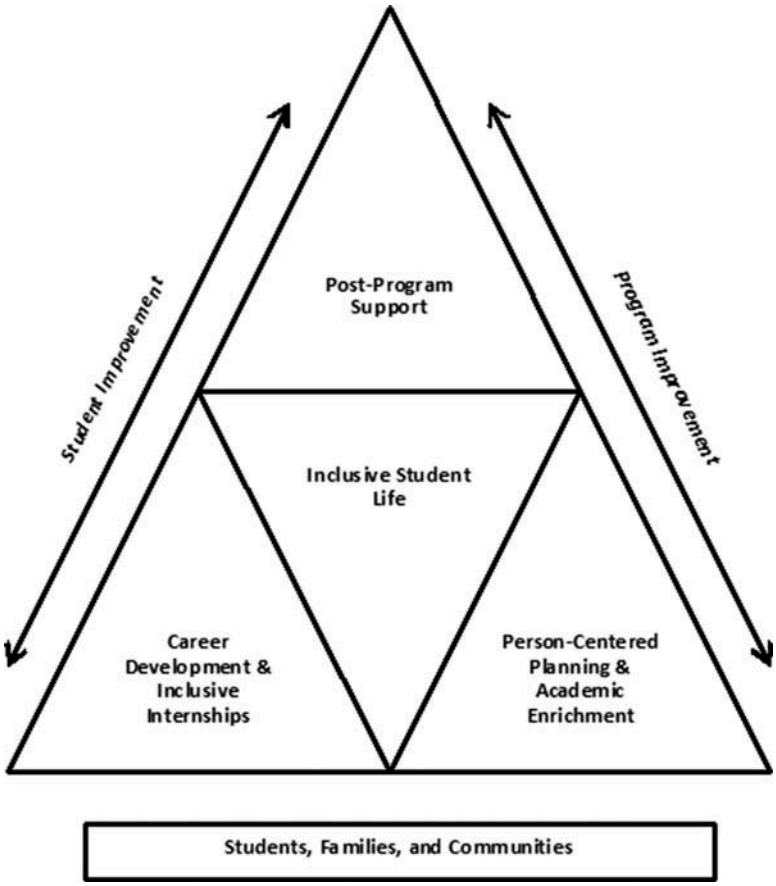
Both students with and without disabilities benefit from the application of the Principles of Universal Design (UD), albeit in relationship to space (Watson, Bartlett, Sacks, & Davidson, 2013) or to instruction. Curb cuts, initially championed for individuals who use wheelchairs, benefit a larger population—from those with strollers to individuals whose depth perception is poor to workers moving supplies and equipment. Instructional content that students can choose to access via different input modalities (e.g., listening, reading, viewing, hands-on practicing) and venues (e.g., computer-based, cooperative learning groups, lecture formats) benefits all students from those with auditory memory issues to those with limited reading skills to those with attention and distractibility issues.

Although well-planned implementation of UD principles in the classroom and in housing policies and structures can ameliorate many barriers to student success, individual students may require intensive, extended duration supports. Ackles, Fields, and Skinner (2013), Hendrickson, Vander Busard, Rogers, and Schneidecker (2013), and others have discussed disability-related issues and supports that students with ASD, ID, and other disabilities may require to succeed at college. Memory deficits, organizational difficulties, and distractibility, for example, mark a variety of disabilities. The accommodations and support services typically offered at colleges and universities may be insufficient to meet these students' needs. Students with ASD may require on-going, targeted communication and social skill training; students with severe learning disabilities may require cognitive strategy training; and students with emotional and behavioral issues may require extended counseling and interpersonal communication training.

Pascarella and colleagues proffer a longitudinal view of first-year college student experiences and the variables (e.g., residence hall living-learning communities, collaborative learning, fulltime enrollment, instructor interaction and feedback) that positively impact student outcomes (Pascarella & Terenzini, 2005). Much is known about first-year college students' engagement and their perceptions, for example, of their level of academic challenge, active and collaborative learning, student-faculty interaction, the campus environment, and their educationally enriching experiences (e.g., Pascarella & Terenzini, 2005; Renn & Reason, 2013). Such information is limited or unavailable for students with ID who are enrolled in PSE programs. Although students with a wide range of disabilities are a growing population on campus (e.g., see Volume 40, Number 1 of *The Journal of College and University Student Housing,* which is dedicated to "Addressing the Needs of Residential Students with Disabilities"), the authors' literature search revealed no studies that examined how students with ID perceive their first year of college compared to the perceptions of students without ID.

The lack of data may in part be due to that fact that access to PSE options for students with ID did not receive full legislative support until the passage of the Individuals with Disabilities

Figure 1. The UI REACH Model.



Education Improvement Act (IDEA) of 2004. In this legislation, facilitation of the transition from high school to postsecondary education, vocational education, and continuing and adult education is highlighted. More recently and more emphatically, the Higher Education Opportunity Act of 2008 (HEOA) allowed students with ID to be admitted to colleges and PSE programs without a high school diploma. The HEOA thereby opens the door for students with ID to participate in university coursework. Another important component of the HEOA is to authorize funding of postsecondary Transition Programs for Students with Intellectual Disabilities (TPSID) (Kleinert, Jones, Sheppard-Jones, Harp, & Harrison, 2012) and a National Coordinating Center (NCC), providing much needed fiscal and technical support to IHEs. Twenty-seven TPSID programs located in 23 states received five years of funding (2010–2015). Students with ID at the TPSID program located at The University of Iowa, UI REACH (Realizing Educational and Career Hopes), participated in the current study.

Hendrickson, Carson, Woods-Groves, Mendenhall, and Scheidecker (2013) described the UI REACH Program model, a holistic college experience, in detail (Figure 1). UI REACH is one of

a range of PSE options for students with ID. Although the variation in services and opportunities offered by different programs is substantial (Neubert & Redd, 2008) and in spite of the dearth of empirical evidence (Neubert & Redd, 2008), college and university campuses are considered the ideal educational venue for students with cognitive challenges (Kleinert et al., 2012).

UI REACH is a two-year certificate (non-degree earning) program for students with intellectual and other cognitive disabilities. Its over-riding mission is the provision of a comprehensive, inclusive college experience (Hendrickson, Vander Busard et al., 2013). The UI REACH Program model emphasizes four areas: inclusive student life, person-centered planning & academic enrichment, career development & inclusive internships, and post-program support. UI REACH students take 12–15 course hours per semester, including specially designed coursework and classes with other college students, live in the residence hall, and have inclusive internships in the community.

Students, 18–25 years old from across the United States (35% residents, 65% out of state; n = 19 states), attend the program. UI REACH students have a wide range of intellectual, social, independent life, and communication skills. The majority of students' academic achievement scores fall between the 3rd- and 6th-grade level, and test scores reveal intelligence quotients (IQs) (Mean = 100, standard deviation = 15) ranging from the 50s to approximately 100, with the scores of most students falling in the mid-60s to mid-70s (Hendrickson, Vander Busard et al., 2013).

As noted, there is a lack of research related to the transition of students with ID to living and learning on campus. Anecdotal reports (see www.thinkcollege.net) and limited research (e.g., Hendrickson, Carson et al., 2013) appear to indicate that students with ID who attend college benefit from the experience. No data are available that compare how students with ID and other full-time, first-year students transition to college. The purpose of this study was to compare the college experiences of first year students with ID and without ID. In this study, the responses of two cohorts of first-year UI REACH students were compared to four groups of freshman (i.e., ACT 15 or lower, ACT 22 or lower and LD, LD, random sample) who participated in the Wabash National Study. Three student groups for whom extant data were available were chosen based on their likelihood of being most comparable to UI REACH students. The fourth group was selected because it provided a comparison to a representative sample of first-year students.

Methods

Participants

UI REACH students. Data were collected on two cohorts (academic year 2011/12 and 2012/13) of first-year UI REACH students. There were 20 students in academic year 2011/12 and 22 students in academic year 2012/13. All of these students participated in the study.

Comparison groups. The UI REACH study did not have a matched control group. Instead, the authors used various first-year sub-samples from the longitudinal Wabash National Study of Liberal Arts Education (hereafter, WNS) as naturally occurring comparison groups of college students. The WNS data were collected in the fall of 2006 and the spring of 2007. The WNS measures the experiences and outcomes of a liberal arts education and the sample consisted of incoming first-year students (n = 3081) at 19 four-year and two-year colleges and universities (see http://www.liberalarts.wabash.edu/study-research/ for 2006–2012 WNS information).

The authors selected the following four subsamples from the WNS data:

a. Randomly selected WNS students with precollege academic preparation as measured by an ACT score (or SAT equivalent score, or Community College COMPASS equivalent score) of 15 or lower (n = 21);
b. WNS students with an ACT (or equivalent) of 22 or lower who also had LD (n = 21);
c. WNS students who at entrance to college reported that they had a LD (n = 69);
d. A random sample of 25 students.

Procedures

Data collection. The initial data collection for the WNS was conducted in the early fall of 2006. Students were each paid a stipend of $50. The follow-up WNS data collection was conducted in spring 2007. Students were paid an additional $50 stipend.

WNS survey implementation for UI REACH students paralleled the data collection (i.e., initial data collection in the fall and follow-up data collection in the spring of the students' first year in college). National Survey of Student Engagement (NSSE) surveys (see Dependent Measures), the data reported herein, were administered in February for each UI REACH cohort. Survey administration for UI REACH students was modified in two ways: (a) Because of potential student reading difficulties, mentors individually administered the surveys, reading questions to students on an as needed basis, and (b) UI REACH students did not receive any remuneration for participation.

Dependent Measures

When selecting academic and nonacademic experiences on which to focus, the authors were conceptually guided by a body of literature and evidence that specifies "good practices" in undergraduate education that are linked to personal and intellectual growth during college (Astin, 1993; Chickering & Reisser, 1993; Kuh, Schuh, Whitt, & Associates, 1991; Pascarella & Terenzini, 1991, 2005). To measure these "good practices," UI REACH selected empirically vetted scales from the National Survey of Student Engagement (NSSE) (Pascarella et al., 2006). These scales are designed to tap a range of "good practices," such as student-faculty interaction, active learning/time on task, quality of teaching, prompt feedback from faculty, cooperative learning, high academic expectations, and diversity experiences. Extensive evidence exists to indicate that even in the presence of statistical controls for important confounding influences, the good practices measured by these dimensions are significantly linked to student cognitive and personal development during college (see Cruce, Wolniak, Seifert, & Pascarella, 2006; Pascarella, Wolniak, Seifert, Cruce, & Blaich, 2005; Pascarella et al., 2006, for literature reviews and citations to original studies).

The following five good practices operationally defined by the widely used "Benchmark Scales" of the NSSE were utilized:

- *Level of Academic Challenge* is an 11-item scale in which students reported the time they spend preparing for class, the amount of reading and writing they have done, and institutional expectations for academic performance.
- *Active and Collaborative Learning* is a 7-item scale on the extent of students' class participation, the degree to which they have worked collaboratively with other students inside and outside of class, and the amount of tutoring and number of community-based projects in which they have been involved.

- *Student-Faculty Interaction* is a scale based on 6 items. Students report on the extent of their interaction with faculty members and advisors and discussions of ideas outside of class. They also report on the extent of prompt feedback on academic performance and individual work with faculty members.
- *Supportive Campus Environment* is a 6-item scale measuring the extent to which students feel that the campus helps them succeed academically and socially, assists them in coping with non-academic responsibilities, and promotes supportive relations among students and their peers, faculty members, and administrative personnel and offices.
- *Enriching Educational Experiences* is a scale with 12 items probing the extent of students' interactions with those of different racial and ethnic backgrounds or with different values and political opinions as well as their participation in activities such as internships and community service.

A complete listing of items constituting the NSSE Benchmark Scales and their internal consistency reliabilities is shown in Table 1.

The second set of first-year college experience dependent variables were three scales that measured students' use of deep approaches to learning. The three scales were higher-order learning, reflective learning, and integrative learning. The scales were developed by Nelson Laird and his colleagues (Nelson Laird, Shroup, & Kuh, 2006) and are taken from the NSSE survey. The specific items constituting the three deep learning scales and the scale's internal consistency reliabilities are summarized in Table 2.

Finally, the authors considered four additional student experiences taken from the NSSE survey: hours spent on co-curricular activities, quality of academic advising, educational experiences, and whether or not the student would attend the same institution again. Operational definitions of these four variables are shown in Table 3.

Data Analyses

UI REACH data collection paralleled that of the WNS data and was longitudinal. The authors, therefore, were able to statistically control for a pre-college measure of the dependent variable, or for potentially confounding pre-college experiences. Consequently, the authors employed various forms of regression-based analysis of covariance to determine the differences between UI REACH students and the WNS comparison groups on the dependent measures (i.e., the NSSE scales). In each comparison the authors conducted, they introduced statistical controls for the following covariates: full- or less than full-time enrollment, lived on campus versus commuted to college, a 7-item measure of secondary school involvement, an 8-item measure of pre-college academic motivation, an 18-item measure of need for cognition (the extent to which one enjoys effortful cognitive activities), a measure of parental education, attendance at a community college, and attendance at a liberal arts college.

Because of the relatively small sample sizes, the authors used an alpha level of 0.10 to designate statistical significance. However, because the authors' analyses required them to conduct 48 individual analyses of covariance in each year of data collection (e.g., 48 analyses for UI REACH comparisons from year 2011/12 and 48 analyses for UI REACH comparisons from year 2012/13), they used the Bonferroni correction to maintain an overall alpha level of 0.10 across the multiple analyses. Thus, no individual statistically adjusted mean difference was considered significant unless it was significant at $p < 0.0021$ (i.e., 0.10/48).

Table 1

National Survey of Student Engagement Benchmarks of Effective Educational Practice[a]

***Scale*/Items**
Level of Academic Challenge (alpha reliability = 0.73)[b]
Time spent preparing for class (studying, reading, writing, rehearsing, and other activities related to your academic program)
Worked harder than you thought you could to meet an instructor's standards or expectations
Number of assigned textbooks, books, or book-length packs of course readings
Number of written papers or reports of 20 pages or more
Number of written papers or reports between 5 and 19 pages
Number of written papers or reports fewer than 5 pages
Coursework emphasizes: Analyzing the basic elements of an idea, experience, or theory
Coursework emphasizes: Synthesizing and organizing ideas, information, or experiences
Coursework emphasizes: Making judgments about the value of information, arguments, or methods
Coursework emphasizes: Applying theories or concepts to practical problems or in new situations
Campus environment emphasizes spending significant amounts of time studying and on academic work
Active and Collaborative Learning (alpha reliability = 0.67)[b]
Asked questions in class or contributed to class discussions
Made a class presentation
Worked with other students on projects during class
Worked with classmates outside of class to prepare class assignments
Tutored or taught other students
Participated in a community-based project as part of a regular course
Discussed ideas from your readings or classes with others outside of class (students, family members, co-workers, etc.)
Student-Faculty Interaction (alpha reliability = 0.71)[b]
Discussed grades or assignments with an instructor
Talked about career plans with a faculty member or advisor
Discussed ideas from your readings or classes with faculty members outside of class
Worked with faculty members on activities other than coursework (committees, orientation, student-life activities, etc.)
Received prompt written or oral feedback from faculty on your academic performance
Worked with a faculty member on a research project
Supportive Campus Environment (alpha reliability = 0.66)[b]
Campus environment provides support you need to help you succeed academically
Campus environment helps you cope with your non-academic responsibilities (work, family, etc.)
Campus environment provides the support you need to thrive socially
Quality of relationships with other students
Quality of relationships with faculty members
Quality of relationships with administrative personnel and offices

(*continued*)

Table 1

(***Continued***)

***Scale*/Items**
Enriching Educational Experiences (alpha reliability = 0.79)[b]
Talking with students with different religious beliefs, political opinions, or values
Talking with students of a different race or ethnicity
An institutional climate that encourages contact among students from different economic, social, and racial or ethnic backgrounds
Using electronic technology to discuss or complete assignments
Participating in:
• Internships or field experiences
• Community service or volunteer work
• Foreign language coursework
• Study abroad
• Independent study or self-assigned major
• Culminating senior experience
• Co-curricular activities
• Learning opportunities

[a]Source: National Survey of Student Engagement (2011).
[b]Alpha reliability is from National Survey of Student Engagement First-Year Reliability-Internal Consistency (2010).

In addition to statistical analyses, the authors examined the data descriptively in order to determine any differentiating patterns between UI REACH students and the comparison groups. The authors considered a pattern to exist if there were three or more similar differences within or across years with a p-value of 0.1 or lower between UI REACH students and comparison groups.

Limitations

The current study is the only comparison of its kind; the results are preliminary with limited generalizability. Although the responses of two cohorts of students with intellectual and other cognitive disabilities offered some replication of effect, only students in one holistic program, the UI REACH Program, participated in this investigation. Thus, generalization across institutions cannot be made. Because options for students with ID at the postsecondary level vary substantially (Neubert & Redd, 2008), one cannot generalize the results of the current study to the broad array of PSE program models for students with ID.

Results

Table 4 summarizes the results of the authors' analyses of covariance for UI REACH Cohort 1, and Table 5 summarizes the results of the authors' analyses of covariance for UI REACH Cohort 2. The coefficient in the tables represents the adjusted mean difference between the UI REACH students (coded 1) and the specific WNS comparison group (coded 0). Thus, positive coefficients represent an adjusted mean difference favoring the UI REACH students, while a negative coefficient represents an adjusted mean difference favoring the WNS comparison group. As Table 4 indicates, when the Bonferroni correction was

Table 2.

National Survey of Student Engagement (NSSE) Deep Approaches to Learning Scales and Constituent Items[a]

***Scale*/Items**
Higher-Order Learning (alpha reliability = 0.82)[b]
Analyzed the basic elements of an idea, experience, or theory, such as examining a particular case or situation in depth and considering its components
Synthesized and organized ideas, information, or experiences into new, more complex interpretations and relationships
Made judgments about the value of information, arguments, or methods, such as examining how others gathered and interpreted data and assessing the soundness of their conclusions
Applied theories or concepts to practical problems or in new situations
Integrative Learning (alpha reliability = 0.72)[b]
Worked on a paper or project that required integrating ideas or information from various sources
Included diverse perspectives (different races, religions, gender, political beliefs, etc.) in class discussion or writing assignments
Put together ideas or concepts from different courses when completing assignments or during class discussions
Discussed ideas from your readings or classes with faculty members outside of class discussions
Discussed ideas from your readings or classes with others outside of class (students, family members, co-workers, etc.)
Reflective Learning (alpha reliability = 0.81)[b]
Examined the strengths and weaknesses of your own views on a topic or issue
Tried to better understand someone else's views by imagining how an issues looks from his or her perspective
Learned something that changed the way you understand an issue or concept

[a]Source: Nelson Laird et al. (2006).
[b]Alpha reliability is from Nelson Laird et al. (2006).

Table 3

National Survey of Student Engagement (NSSE) Additional Questions[a]

Hours Spent on Co-curricular Activities
Hours in a typical week spent participating in co-curricular activities (organizations, campus publications, student government, fraternity or sorority, intercollegiate athletics, intramural sports, etc.)
Quality of Academic Advising
Quality of academic advising received at current institution
Educational Experiences
Evaluation of overall educational experience at current institution
Attend Same Institution Again
Student would choose to attend the same institution if student could start over again

[a]Source: National Survey of Student Engagement (2011).

Table 4

Statistically Adjusted Differences between 2011–2012 UI REACH Students and Wabash National Study (WNS) Comparison Groups in First-Year College Experiences

	WNS Comparison Groups							
	ACT 15 or lower		ACT 22 or lower and Learning Disability		Learning Disability		Random WNS Sample	
Dependent Variable	**Coefficient[a]**	**(p-value)[b]**	**Coefficient[a]**	**(p-value)[b]**	**Coefficient[a]**	**(p-value)[b]**	**Coefficient[a]**	**(p-value)[b]**
Level of Academic Challenge	-0.599	(0.441)	-0.120	(0.879)	-0.938	(0.008)	-0.453	(0.471)
Active and Collaborative Learning	-0.199	(0.661)	1.252	(0.087)	-0.141	(0.701)	0.739	(0.228)
Student-Faculty Interaction	-0.033	(0.959)	0.352	(0.602)	-0.201	(0.567)	0.418	(0.463)
Enriching Educational Experiences	0.502	(0.357)	-0.136	(0.838)	-0.644	(0.065)	0.394	(0.486)
Supportive Campus Environment	0.199	(0.755)	0.804	(0.239)	0.248	(0.520)	-0.141	(0.799)
Deep Approaches to Learning: Higher Order	-0.953	(0.242)	-0.300	(0.717)	-0.852	(0.021)	-0.335	(0.631)
Deep Approaches to Learning: Integrative Learning	-0.660	(0.239)	0.126	(0.856)	-0.812	(0.035)	-0.465	(0.419)
Deep Approaches to Learning: Reflective Learning	0.222	(0.734)	-0.375	(0.557)	-0.032	(0.927)	0.580	(0.343)
Hours Spent on Co-curricular Activities	1.416	(0.043)	1.368	(0.147)	-0.279	(0.552)	0.220	(0.808)
Quality of Academic Advising	0.301	(0.217)	0.163	(0.621)	0.223	(0.211)	0.496	(0.024)
Educational Experiences	-0.546	(0.049)	-0.286	(0.373)	-0.349	(0.013)	-0.527	(0.029)
Attend Same Institution Again	-0.210	(0.354)	-0.209	(0.426)	-0.111	(0.410)	-0.239	(0.348)

[a]All dependent measures were standardized. Thus, the coefficients represent that part of a dependent variable standard deviation on which the UI REACH students are advantaged or disadvantaged (depending on the sign) relative to the WNS comparison group.
[b]Because the authors conducted 48 separate analyses of covariance by regression, they adjusted the nominal alpha level of $p < 0.10$ using the Bonferroni Correction. Thus, 0.10 was divided by 48, which meant that any single comparison had to have a p-value of 0.0021 (0.10/48) or less to be statistically significant. None of the comparisons was statistically significant at this level.

Table 5

NSSE 2012–2013 Statistically Adjusted Differences between 2012–2013 UI REACH Students and Wabash National Study (WNS) Comparison Groups in First-Year College Experiences

	ACT 15 or lower		ACT 22 or lower and Learning Disability		Learning Disability		Random WNS Sample	
Dependent Variable	**Coefficient[a]**	**(p-value)[b]**	**Coefficient[a]**	**(p-value)[b]**	**Coefficient[a]**	**(p-value)[b]**	**Coefficient[a]**	**(p-value)[b]**
Level of Academic Challenge	-0.329	(0.594)	0.909	(0.392)	-0.247	(0.479)	0.149	(0.732)
Active and Collaborative Learning	-0.210	(0.778)	3.052	(0.028)	0.718	(0.099)	0.891	(0.135)
Student-Faculty Interaction	0.630	(0.308)	1.006	(0.353)	0.774	(0.068)	1.308	(0.007)
Enriching Educational Experiences	0.987	(0.117)	1.762	(0.138)	0.360	(0.373)	1.125	(0.043)
Supportive Campus Environment	0.590	(0.409)	2.282	(0.087)	0.433	(0.330)	0.218	(0.683)
Deep Approaches to Learning: Higher Order	-0.625	(0.366)	1.323	(0.253)	-0.039	(0.917)	0.459	(0.371)
Deep Approaches to Learning: Integrative Learning	-0.233	(0.726)	0.493	(0.702)	0.258	(0.563)	0.237	(0.672)
Deep Approaches to Learning: Reflective Learning	0.447	(0.453)	-0.399	(0.688)	0.628	(0.104)	0.564	(0.263)
Hours Spent on Co-curricular Activities	1.993*	(0.002)	2.964	(0.067)	0.331	(0.540)	1.019	(0.206)
Quality of Academic Advising	0.308	(0.191)	0.290	(0.591)	0.278	(0.172)	0.215	(0.258)
Educational Experiences	0.062	(0.778)	0.158	(0.756)	0.011	(0.938)	-0.184	(0.221)
Attend Same Institution Again	0.101	(0.576)	0.035	(0.934)	0.026	(0.853)	-0.157	(0.437)

[a]All dependent measures were standardized. Thus, the coefficients represent that part of a dependent variable standard deviation on which the UI REACH students are advantaged or disadvantaged (depending on the sign) relative to the WNS comparison group.
[b]Because the authors conducted 48 separate analyses of covariance by regression, they adjusted the nominal level of $p < 0.10$ using the Bonferroni Correction. Thus .10 was divided by 48, which meant that any single comparison had to have a p-value of .0021 (0.10/48) or less to be statistically significant. Only one of the comparisons was statistically significant at this level.
*statistically significant adjusted mean difference.

applied, there were no significant differences between the first-year college experiences of Cohort 1 UI REACH students and their WNS counterparts. As Table 5 indicates, when the Bonferroni correction was applied, there was one significant difference between the first-year college experiences of Cohort 2 UI REACH students and their WNS counterparts. Namely UI REACH students indicated they spent more hours on co-curricular activities than a sample of students who scored 15 or below on the ACT.

The pattern analysis indicated that a total of three categories had three similar differences with a p-value of 0.1 or lower between UI REACH students and the comparison groups. Two of these comparisons (i.e., active and collaborative learning and hours spent on co-curricular activities) favored the UI REACH group and one comparison (i.e. educational experiences) favored the comparison groups.

Discussion

Historically students with ID have been excluded from postsecondary education opportunities and excluded and segregated from society to a degree that there have been serious negative repercussions on their social-emotional, recreational, independent living, employment outcomes, and life expectancy. Both students with ID and students without ID who receive some PSE have better economic outcomes than those who do not (Migliore, Butterworth, & Hart, 2009). Pascarella and Terenzini (2005), Baum and Ma (2007), and others note that employers are inclined to hire individuals who have had some college coursework, and it is likely that such preferential hiring holds true for individuals with ID.

Although the growing trend of students with ID attending PSE programs refutes conventional wisdom of "who" should go to college (Ludlow, 2012), no data have been available to draw conclusions on how "going to college" influences students with ID. In the present study, the authors administered the NSSE Benchmarks of Effective Educational Practice, which examines dimensions of learning and college life such as level of academic challenge, active and collaborative learning, student-faculty interaction, supportive campus environment, and enriching educational experiences (see http://www.celt.iastate.edu/teaching/NSSE_5benchmarks.html) to two cohorts of first-year students with intellectual disabilities.

In the current study, the authors essentially found no significant differences between students with ID and the comparison groups. This overall result suggests that students with ID participating in a comprehensive, holistic program such as UI REACH likely experience their first year at college/university similarly to their peers without ID on a number of important dimensions associated with student engagement and good educational practices. Data from the present study indicate that when appropriate educational and student life supports are available and utilized, students with ID may benefit from college much like other first-year students. Cruce and colleagues (2006) reported consistent evidence that good educational practices such as (a) students working with other students on projects during class, (b) students talking about career plans with a faculty member or advisor, and (c) students experiencing a campus environment that provides the supports that the student needs to thrive socially positively affect the *cognitive development, learning orientations*, and *educational aspirations* of students.

Two cohorts of first-year UI REACH students judged "good practices" similarly to first year undergraduates. One might cautiously conclude that these good educational practices will have a positive influence on the cognitive development, learning orientations, and educational aspirations of students with ID just as they do on other first year students. Cruce et al. (2006) further purported that good educational practices have a compensatory effect for students below average

on measures of cognitive ability and/or orientation to learning. Although data remain to be gathered related to a compensatory effect on students with ID, students whose intellectual challenges are substantially more formidable than those of most first-year college students may possibly reap even greater benefits from good PSE practices.

Renn and Reason (2013) pointed out that when an institution admits a student, it makes a commitment to that student's success. The results of this study and prior research pertaining to college students with disabilities (e.g., DaDeppo, 2009; Rao, 2004; Wolf, 2001) have implications for improving student outcomes. To the extent that individuals with ID are increasingly accepted as students who can benefit developmentally and intellectually from a postsecondary educational experience, student affairs preparation programs may need to expand the professional preparation curricula and practicum experiences to include a focus on understanding the special developmental challenges facing students with ID, supports required for these students to succeed, and the impact of attitudinal barriers within higher education on students (Rao, 2004). For college students with learning disabilities, integration into university life appears to trump traditional indicators of persistence and academic success (e.g., high school GPA; DaDeppo, 2009). The positive relationship between integration and intent to persist has implications for student affairs preparation programs and IHE administrators in that identifying, prioritizing, and implementing strategies and services that facilitate the integration of students with disabilities may be especially warranted. Wagner, Newman, Cameto, Garza, and Levine (2005) noted that approximately one-third of eligible college students with disabilities self-identify and receive accommodations, and the self-awareness, self-regulation, and self-advocacy skills of these students are likely more developed than those who do not self-identify. Multiple, universally applied strategies for helping students better understand their learning and transition needs, the social and academic supports available, and how to self-advocate would benefit students with and without disabilities. Student affairs preparation curricula and practica might be enhanced by highlighting the need to recognize and more fully address these dimensions of student development.

Based on a synthesis of the literature, Pascarella and Terenzini (2005) pointed out that improved educational practices that enhance the learning and development of students include the use of a variety of instruction and learning approaches both inside and outside the classroom. This recommendation of Pascarella and Terenzini is consistent with the tenants of Universal Design for Learning (UDL) (see http://www.udlcenter.org), a new educational practice. Pascarella and Terenzini viewed creating a supportive psycho-social environment, which is based on teaching excellence, as critical to meaningful student engagement.

The authors' preliminary data comparing students with ID to four groups of first-year college students (e.g., ACT 15 or lower, ACT 22 or lower plus LD, LD, random sample) support the conclusion of Kleinert et al. (2012) regarding "where" PSE should occur. Kleinert and colleagues proposed that a college or university campus is an appropriate, and perhaps even the ideal, educational venue for continuing the education and development of young adults with cognitive challenges. Renn and Reason (2013) contended that initiatives that provide comprehensive support, that is, campus-based academic, social, and cultural support based on (a) an understanding of the population being served and (b) the pressing needs of that population, are likely to be the most successful transition-to-college initiatives.

Students with ID, a new student group on campus, have challenges that require the design of thoughtful, well-conceived academic, social, and cultural supports such that each individual student's needs and the array of each student's educational experiences contribute positively to each student's academic achievement; social, cultural, and interpersonal competency; and sense of

self-efficacy. At UI REACH intensive and continuous support services range from weekly advising sessions to daily study tables with tutors to evening and weekend mentor assistance. The advisor-advisee relationship serves as the basis for student goal setting, problem ownership and problem solving, and managing personal, academic, and social concerns (Hendrickson, Carson et al., 2013).

Strategies that IHEs employ to scale up the range and intensity of supports to match the needs of students with ID are likely to be associated with the quality of education received, student retention rates, and long-term student outcomes. Services that do not require students to self-initiate or to verify their disability status are more likely to positively affect students with disabilities than policies and procedures that publicly differentiate and often stigmatize students (Rao, 2004). Administrators, supervisors, faculty, and staff will need to assess the types of services available to students and design approaches for meeting the needs of students in a relatively seamless, ubiquitous manner. Valuing and planning for the education of students with ID is required at all levels of the university from central administration to departmental leadership in the preparation of personnel in fields such as higher education and student affairs, career and mental health counseling, and rehabilitation counselor education.

Significant differences favoring UI REACH students were found in two analyses. First, active and collaborative learning experiences were more frequently reported by both cohorts (i.e. 2011/12, 2012/13) of UI REACH students than by freshman with ACT scores of 22 or lower plus a learning disability ($p = 0.087$ for Cohort 1; $p = 0.028$ for Cohort 2). Second, UI REACH students in Cohort 2 spent significantly more hours on co-curricular activities than two samples of freshman (i.e., those with ACT scores of 15 or lower, those with ACT scores of 22 or lower and a learning disability). Because UI REACH students attend core classes together during their first year on campus, are roommates with one another, and participate in a de facto living-learning community, it may be that the programming provided inside and outside of the classroom is particularly salient in the experience of students with ID (versus the experiences of the comparison groups). Three groups (i.e., ACT 15 or lower, learning disability, and random WNS sample) evaluated their educational experiences higher than UI REACH Cohort 1, a result that remains to be replicated in future studies.

Future Research

Future research is needed to confirm or disconfirm the generality of these findings and the potential value of inclusive, holistic programs for students with ID. Research is also needed on the impact of such programs on undergraduates in general and on the culture and climate of the IHE. In the final analysis, post-college outcomes must be assessed longitudinally to understand the relative economic impact and how the individual's quality of life is affected.

There is much to be learned in the examination of the college experience and student engagement of first-year students in comparison to students with ID also receiving a postsecondary education at IHEs. Research is needed not only to determine similarities and differences but to identify specific independent variables (e.g., programmatic and institutional) that enhance outcomes of all students during and after their college experience.

Conclusion

The definitions of "diversity" and "inclusiveness/inclusion" in higher education have changed across the decades (Renn & Reason, 2013). These concepts, again, are being transformed as the enrollment of students with disabilities, including students with ID, on college campuses

increases. As colleges and universities compete for students and for relevance in today's society, expanding the university mission to educate students with ID and to prepare professionals to work with and on behalf of students with ID in postsecondary education environments is likely to occur.

As Pascarella and Terenzini (2005) reported, post-1990s research reveals the broad scope of impact that exposure to college has on students' lives. Individuals who go to college learn better, know more, earn more, and are more engaged in their communities. The individual with college experience is more disposed to learning as a lifelong pursuit and tends to lead a healthier, longer life. The present study, although limited in scope, offers the first available data comparing the transition to college of first-year undergraduates and first-year students with ID attending a comprehensive, holistic PSE program. The life experiences and level of engagement of these students appear to be indistinguishable. The college experience itself appears to raise expectations and outcomes of all students. Based on Renn and Reason's (2013) conclusions pertaining to initiatives for successful transition to college, IHEs which provide comprehensive, holistic, population sensitive supports are the ones most likely to achieve improved student outcomes, regardless of disability status.

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